

B1 --This application is related to the following copending applications: PO9-99-013, Serial Number 09/253,246; PO9-99-015, Serial Number 09/253,247; PO9-99-016, Serial Number 09/253,248; PO9-99-017, Serial Number 09/252,712; PO9-99-018, Serial Number 09/252,552; PO9-99-019, Serial Number 09/252,728; PO9-99-020, Serial Number 09/252,730; PO9-99-021, Serial Number 09/253,101; PO9-99-022, Serial Number 09/253,286; PO9-99-023, Serial Number 09/252,542; PO9-99-024, Serial Number 09/253,249; PO9-99-025, Serial Number 09/252,556; PO9-99-026, Serial Number 09/253,993; PO9-99-027, Serial Number 09/253,658; PO9-99-028, Serial Number 09/252,555; PO9-99-029, Serial Number 09/255,641; PO9-99-030, Serial Number 09/255,640; and PO9-99-031, Serial Number 09/252,727.--

B2 Delete the two paragraphs at page 4, lines 1-6, and replace 15 with the following two replacement paragraphs:

--Figure 5 represents the format for the command request block for store-subchannel-QDIO data;

Figure 6 represents the format for the command response block for the store-subchannel-QDIO data command;--

B3 20 Delete the paragraph at page 6, lines 13-16, and replace with the following replacement paragraph:

--As can be seen in Figure 1, it is also possible to have one or more dynamic switches 160 or even a switching fabric (network of switches) included as part of the path, coupled to 25 the channel(s) 155 and the control units(s) 180. Each control unit 180 is further attached via a bus to one or more I/O device(s) 190.--

Delete the four paragraphs at page 12, line 12, to page 14, line 26, and replace with four replacement paragraphs as follows:

--Figure 3 depicts the control structure overview for the input and output queues associated with a QDIO subchannel.

*B4* 5 Figure 3 also demonstrates the queue components as defined for the present invention. The Queue Information Block (QIB) contains information about the collection of QDIO input and output queues associated with a given subchannel. It provides information for collection of input and output queues for the 10 adapter associated with the subchannel. One QIB is defined per QDIO subchannel; Figure 9 provides the format of queue-information block as per one embodiment of the present invention.

The Storage List Information Block (SLIB) provides for the 15 address of information stored pertaining to each queue. One SLIB is defined for each queue. SLIB contains information about a QDIO queue and has a header and entries called storage-list-information-block entries containing information about each of the buffers for each queue. Figure 10 provides 20 SLIB format as per one embodiment of the present invention. Furthermore, a storage list information block element or SLIBE can be provided containing information regarding the QDIO data buffer as determined by the corresponding SL entry. Figure 11 depicts a sample SLIBE content.

25 The Storage List or SL defines the SBAL or storage block address lists that are defined for each I/O buffers associated with each queue. One SL is defined for each queue which contains an entry for each QDIO-I/O buffer associated with the queue. SL provides information about the I/O buffer

locations in main storage. As per one embodiment of the present invention, Figure 12 provides a sample SL content. SL also provides the absolute storage address of a storage block address list. In turn, SBAL contains a list of absolute addresses of the 5 storage blocks that collectively make up one of the data buffers associated with each queue. A storage block address list entry or SBALE is also provided as part of each SBAL. Each SBALE contains the absolute storage address of a storage block. Collectively, the storage blocks addressed by all of the entries 10 of a single SBAL constitute one of the many possible QDIO buffers of a QDIO queue. In a preferred embodiment, the number of these possible QDIO buffers equal 128. Figure 13 provides for the format of a SBALE as provided by one embodiment of the present invention. SBALF or SBAL Flags contain information about the 15 overall buffer associated with the SBAL containing each SBALE, and not just about the storage block associated with each SBALE. The description of contents of the SBALF field is different for each SBALE within the SBAL.

A Storage-List-State Block or SLSB contains state indicators 20 that provide state information about the QDIO buffers that make up a queue. A QDIO buffer consists of the collection of storage blocks that can be located using all of the addresses in a single storage-block-address list. Depending on the current state value in an SLSB entry, either the program or the QDIO control unit can 25 change the state of the corresponding QDIO buffer by storing a new value in the entry. Figure 14 provides a sample SLSB format as per one embodiment of the present invention. SLSB also provides for a SQBN or state of queues buffer N which provides the current state of the corresponding QDIO buffer. The QDIO 30 buffer that corresponds to a given SLSB entry is determined by the storage list entry having the same sequential position in the storage list as the SQBN field has in the SLSB. In one

embodiment, the state value consists of two parts, bits 0-2 indicate whether the buffer is owned by the program or the QDIO control unit and whether the buffer is an input or output buffer. Bits 3-7 contain a value that indicates the current processing state of the buffer. In this embodiment different bits can also be identified to mean different configurations. For example, bit zero can be established to indicate program ownership, while bits 1 and 2 provide for QDIO control unit ownership and buffer type respectively. Bits 3-7 can contain a binary value that indicates the current processing state of the associated buffer such as empty (available for data storage), primed (available to be processed), not initialized (not available for use), or halted (contains valid data but data transfer was prematurely halted by program executing Halt Subchannel), and Error (associated buffer is in an error state and contents of buffer are not meaningful).--

---

Delete the two paragraphs at page 27, lines 13 to page 28, line 3, and replace with the following replacement paragraphs:

*B5* --The CHSC command is used to obtain self description information for the QDIO adapters associated with a specified range of subchannels. When the CPC is operating in a mode where several images are used, the CHSC command is used to obtain self description information for the QDIO adapters associated with a specified range of subchannel images, configured to the logical partition that executed the command information for subchannel images configured to other logical partitions, if any, is not provided. Figure represents the format for the command request block for store-subchannel-QDIO data. Figure 6 represents the format for the command response block for the

store-subchannel-QDIO data command. In addition, Figure 6 includes Subchannel-QDIO description Block.

In short the CHSC command specifies which device the request for processing can be sent to. It further provides for the 5 format and attributes of the QDIO, such as the size and attribute of the queues, and other characteristics that may relate to the specific processor. QFMT or QDIO Queues Format and QDIOAC or QDIO Adapter characteristics in the Subchannel-QDIO description Block of Figure 6 includes this information. IQCNT of the 10 Subchannel-QDIO description Block provides the Input Queues Count and OQCNT also of the Subchannel-QDIO description Block provides an Output Queue Count.--

---